

REMARKS

Claim Status:

Claims 4 and 29-30 have been objected to because they depend from a rejected claim. The Office Action indicates that these claims would be allowable if rewritten in independent form.

Claim 31 has been canceled.

Method claims 1-7 have been canceled and replaced with new claims 32-39. New claims 32-38 correspond to original claims 1-7 rewritten to use gerunds to indicate the parts of the method. New claim 39 is supported by the specification; see for example page 8, lines 8-10, and page 10, line 4. Thus, no new matter has been added by these claims.

Apparatus claim 8 has been canceled and replaced with new claim 40. New claim 41 is supported by the specification at, for example, page 10, line 4. Thus, no new matter has been added.

With these amendments, claims 8-30, and 32-41 are pending.

Specification:

The Office Action requested amendment of the abstract for several reasons including (a) a form of two paragraphs, (b) length, and (c) use of "means" and "said." Applicants note that the abstract was already amended to a single paragraph in

the Preliminary Amendment submitted on April 17, 2006. However, for the convenience of the Office, this paper includes an amended abstract.

The currently amended abstract, attached as a separate page at the end of the amendment, meets the requirements of MPEP §608.01(b).

Objection:

Claim 31 was objected to for improper form, referring to other claims in the alternative only. Claim 31 has been canceled.

Claim Rejections - 35 USC §112:

Claim 7 was rejected for using the phrase "plate-like" as allegedly rendering the claim indefinite. Section 2173.05(d) states that Exemplary claim language ("for example" and "such as") is indefinite. In the claim, the word "plate-like" was not being used in an Exemplary sense, but is the adjective form of the word, "plate."

On page 2, line 6, a treated article may be one "which is in the shape of a plate." The word "plate-like" in new claim 38, corresponding to canceled claim 7 has been utilizes the adjective "plate-shaped" for the article. Similarly, claim 28 has been amended to refer to "plate-shaped."

Claim Rejection - 35 USC § 103:

Claims 1-3, 5-11, 13-16, 18-21, 24, 27-28 stand rejected under 35 USC 103(a) as being unpatentable over Champlin (U.S. Pat. 3,048,383) in view of Grenci et al. (U.S. Pat. 5,906,055).

The Champlin apparatus is not a dryer. The Champlin apparatus is a furnace for batch or continuous heat treatment of various articles, (e.g. column 1, line 14 for promoting certain chemical reactions). A furnace differs from a dryer. In the Champlin furnace, the gas from the blowers is recirculated to the same blowers for relatively high heating or cooling economy (see column 1, lines 39-41, and claim 1, lines 66-68). Because of recirculation, the gas mentioned in Champlin furnace is not a gaseous drying medium as drying of a treated article with recirculation would quickly saturate the gas, leading to ineffective and prolonged drying. The apparatus described by Champlin is not suitable for drying of articles, so it would not be considered by a person skilled in the art.

The Applicant's specification (page 1, lines 25-30) teaches the importance of temperature control to avoid localized heating. The claims require control of the fan means such that the temperatures of the respective gas flows are regulated to predefined values. Further, the language of the claims results in a system that uses direct heating of the substrate article, i.e., the gas stream are directed onto the

article. Champlin does not disclose or suggest such features.

The Examiner states that it would have been obvious to modify the method and apparatus of Champlin to regulate the gas stream temperature by controlling fan rotation speed based on the detected gas temperature in view of disclosure in Grenci. Applicants respectfully disagree with the Examiner's conclusion.

Champlin in column 3, lines 45-55 explicitly recommends using an indirect heating of the gases, such as the use of electrical resistance heater grids or radiant tubes. Champlin states that this simplifies the system by allowing separate control of temperature and air flow. Grenci describes his apparatus as being useful for both direct heating of surfaces, e.g., internal surfaces of a vacuum system (col. 5, lines 7-16), and indirect heating of liquids or gases (col. 6, lines 43-51, col. 7, line 33 to col. 8, line 12, and figures 8, 9).

A proper interpretation of the Grenci reference teaches away from using the Grenci apparatus for direct heating of articles in a dryer of the type claimed. The claims require temperature regulation, a feature not shown by Grenci in connection with a direct heating system and a feature not suggested by his indirect heating system. Grenci's apparatus only provides controlled temperatures in indirect heating systems. In contrast, in direct heating systems at atmospheric pressure (see figure 7 and the associated text),

the Grenci apparatus results in rapid and unregulated temperature increases.

Therefore, the Champlin and Grenci references teach away from combining the gas compressor of Grenci with the furnace of Champlin to provide direct, controlled heating of a gas stream suitable for use in a dryer as in the instant application.

Finally, assuming arguendo, that a person skilled in the art would combine Champlin and Granci teachings, the result would not be the invention as claimed. Rather, if a person skilled in the art would replace the heating mechanism of Champlin, i.e. the heat exchanger with the tube and the burners, by a gas compressor as disclosed in Grenci, he would end up at an apparatus where the blowers are used for generating a gas stream and then a separate compressor would be required for regulating the temperature of the gas stream. In contrast thereto, in the claimed invention one and the same fan means are used for generating the gas stream and for regulating the temperature.

The claims, therefore, are not rendered obvious by the Champlin and Grenci references. Reconsideration and withdrawal of the rejection based on those references is respectfully requested.

Claim 12 stands rejected as being obvious in view of Champlin and Grenci further in view of U.S. Patent Application Publication 2003/0136019 (Leap). Claim 17 stands rejected as

being obvious in view of Champlin and Grenci further in view of U.S. Patent No. 3,446,273 (Thome). Claims 22-23 stand rejected as being obvious in view of Champlin and Grenci further in view of U.S. Patent No. 4,113,977 (Hochstrasser). And claims 25-26 stand rejected as being obvious over Champlin in view of Grenci et al. and further in view of Melgaard (U.S. Pat. 5,263,265).

As explained above, Champlin and Grenci do not render the independent claims obvious. The deficiencies of Champlin and Grenci are not overcome by the Leap, Thome, Hochstrasser, or Melgaard references.

For the above reasons, the Applicants respectfully request the Examiner withdraw the rejections based on 35 U.S.C. § 103(a).

Conclusion

No new matter is added by these amendments.

The listing of claims replaces the one filed with Applicants' Amendment on November 19, 2009, and contains a complete listing of all the claims with proper status identifiers.

Should the Examiner believe that a discussion of this matter would be helpful, the Examiner is invited to telephone the undersigned at (312) 913-0001.

Respectfully submitted,

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